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1. MANUFACTURER

TEP Ex d.o.o.
Prilaz dr. Franje Tuđmana 6 HR-49210 ZABOK
Tel: +385 49 222 900
Web: www.tepex.hr

2. GENERAL SAFETY INFORMATIONS

⚠ W A R N I N G !

The user manual contains basic information about the product. Mounting, installation, usage and maintenance should be carried out under this user manual to provide and ensure safe operation within the nominal characteristics. This user manual complement national Regulation and Standards. The responsible person shall ensure their implementation. Failure off implement this user manual can reduce explosion protection and endanger people, property and the environment. Any improper and illegal actions as well as non-compliance with the provisions of this user manual excludes all responsibility by manufacturer side.

Before installation/commissioning:
- Carefully read all instructions,
- Execute proper training of responsible personnel,
- Check that the contents of these instructions is fully understandable by the responsible personnel,
- Make sure that all the requirements and national Regulations as well as all special security measures are applied.

In lack of understanding:
- Contact the manufacturer.

During operation:
- Ensure that this user manual and other work instructions are available to the responsible staff at all times,
- Check the implementation of these instructions and all other safety user's instructions

3. PURPOSE

Explosion proof floodlight type RLF/… … is intended for general lighting in industrial with potentially explosive atmosphere, in Zones 1, 2 and in areas endangered by explosive and flammable mixtures of dust and air in Zones 21, 22 accordance with EN 60079-10-1/-2: 2009.

4. PRODUCT COMPLIANCE

The product is in compliance with Regulations concerning equipment and protective systems for use in potentially explosive atmosphere.
The product complies with the ATEX Directive 94/9 EC and standards:

- EN 60079-0:2012,
- EN 60079-1:2007,
- EN 60079-7:2007,
- EN 60079-31:2009.

The product has been developed, manufactured and tested according to the existing state of technique accordance with the standards EN 9001:2008 and EN ISO / IEC 80079-34:2011.
The product is in compliance with the LV Directive 2006/95 EC.
The product is in compliance with the RoHS Directive 2011/65 EU.
The product is in compliance with EMC Directive 2004/108 EC.

5. DEGREE OF PROTECTION AND DATA

Certificate:	EXA 14 ATEX 0020
Marking:	CE 0722
Category and explosion protection:	Ex II 2G Ex d e IIC T4-T3 Gb ili II 2G Ex d IIC T4-T3 Gb II 2D Ex tb IIIC T130°C – T190°C Db
Ambient temperature:	-20ºC ≤ T_a ≤ +40ºC
Mechanical protection:	IP 66
Resistance to shock:	IK 08
Class of protection:	I (PE - protective earthing)
Rated voltage:	RLF/... HIT, HST, HME, IQT, IQL -230 V (-10% / +6%) / 50/60 Hz (reconnected at the ballast) RLF/... QL -230 V (200-277 V) – 50/60 Hz RLF/500 IQL -110 V (-10% / +6%) – 50/60 Hz
Rated power:	- up to 500 W, see selection table
Power factor:	RLF/... HIT, HST, HME - cos φ > 0,9 ind. RLF/... QL - λ > 0,92 THD < 10 %
Entries:	RLF/... HIT, HST, HME, IQT, IQL - three entries M20, in accordance EN 60079-1:2007, ISO 965-1, ISO 965-3, with two Ex d plug and one Ex d e adapter, type ADP 23/1, Ex II 2G Ex d e IIC Gb II 2D Ex tb IIIC Db, for cable $Ø_v$ 7-15 mm or one ATEX certified cable gland. RLF/... QL - two entries M25 into Ex e junction box with one Ex e cable gland, type SPU 25, for cable $Ø_v$ 7-15 mm and one Ex e plug, type SPC 25
Connecting terminals Ex d e adapter type ADP 23/1:	RLF/... HIT, HST, HME, IQT, IQL - clamps in Ex d e adapter for connection L + N + PE; 2,5 mm² solid, stranded
Connection terminals inside floodlight:	RLF/... HIT, HST, HME, IQT, IQL - L + N + PE; max 2 x 2,5 mm² solid, stranded - it is possible through wiring, I_{max}= 16 A (entries closed with two Ex d e adapter or two Ex d cable glands and one Ex d plug)
Connection terminals inside Ex e junction box:	RLF/... QL - terminal L1+L2+L3+ N + PE; max 2 x 4 mm² , solid, stranded - additional PE-terminal, max 4 x 4 mm² - it is possible through wiring, I_{max}= 16 A (entries on junction box closed with two Ex e cable glands)
Clamp for external earthing PA/PE	- 2 x 6mm² max. - solid, stranded
Tightening torque:	RLF/... HIT, HST, HME, IQT, IQL - housing of Ex d e adapter and Ex d plug 3,5 Nm

	- cable gland on adapter 2,5 Nm - screw clamp in adapter 2,0 Nm RLF/... QL - screw combi M5x25 (Z4) - 4.8 A2 Ex e junction box (cover) 1,5 Nm - cable glands Ex e - 2,5 Nm - plug Ex e - 4,0 Nm - screw clamp on terminals - 0,6 Nm
Connection cable for direct entry:	RLF/... HIT, HST, HME, IQT, IQL - 3 x 2,5 mm^2 max, cable suitable for a minimum temperature of 90ºC
Wiring:	- Radox 155, 1,5 mm^2, 1 kV AC, -55ºC do +155ºC, in accordance with EN 60228:2005 class 5, mark of quality VDE
Lamp holder:	RLF/... HIT, HST, HME, IQT - E40, 750 V, 16A, 5 kV, - in accordance EN 60238:2004; mark of quality ENEC RLF/… IQL - R7s-8/250V, - in accordance IEC/EN 60061-1:1993 page 7004-92
Ballast:	RLF/... HIT, HST, HME - 230 V/50/60 Hz, t_w=130ºC, ΔT=50 K, reversible temperature fuse t_{out}=140ºC, - in accordance EN 60923:2005, EN 61347-2-9:2013; mark of quality ENEC
Capacitor:	RLF/400 HIE, HSE - 50 µF±5% RLF/250 HIE, HSE - 32 µF±5% RLF/250 HME - 18 µF±5% - 280 V, 50/60 Hz, -40ºC do +100ºC, - in accordance EN 60252-1:2011, EN 61048:2006; mark of quality VDE
Starter:	RLF/… HIE, HSE - 220-240 V/50-60 Hz, t_c=105ºC, - in accordance EN 60927:2007, EN 61347-2-1:2001; mark of quality VDE
Additional electrical data for RLF/... QL:	RLF/... QL - the earth leakage current of the HF generator is normally less than 0,5 mA -testing the insulation of the wiring: connect 500V DC between ground and respectively the phase and the neutral supply cable. - testing the electrical strength of the HF generator: connect all QL lamp systems inputs together and connect (1000V + 2Uout) AC for 1 minute between this point and ground (HF generator housing). - starting current for a typical impedance circuit: - RLF/85 QL I_{max}/τ = 45 A/350 µs - RLF/165 QL I_{max}/τ = 45 A/500 µs - maximum number of QL lamp systems to be used on one MCB on account of inrush currents - RLF/85 QL; B10 A – 20 pcs. , C10 A – 20 pcs. , B16 A – 30 pcs. , C16 A – 35 pcs. - RLF/165 QL; B10 A – 10 pcs. , C10 A – 10 pcs. , B16 A – 16 pcs. , C16 A – 16 pcs.
Estimate service life:	RLF/... QL - 60.000 / 100.000 working hours
Mounting:	- pendant, on pipe, wall, ceiling mounting - wall or ceiling mounting is possible with RLF carrier and M12 screw. Also, it possible to fixture luminaire to 2" pipe or other round surface with U-Bolts

6. TYPE

MODEL CODE	EXPLOSION - PROTECTION	TYPE OF SOURCES
RLF/250 HIT	II 2G Ex d e IIC T4 Gb or II 2G Ex d IIC T4 Gb	HIE
	II 2D Ex tb IIIC T130°C Db	
RLF/250 HST	II 2G Ex d e IIC T4 Gb or II 2G Ex d IIC T4 Gb	HST
	II 2D Ex tb IIIC T130°C Db	
RLF/250 HME	II 2G Ex d e IIC T4 Gb or II 2G Ex d IIC T4 Gb	HME
	II 2D Ex tb IIIC T130°C Db	
RLF/400 HIT	II 2G Ex d e IIC T3 Gb or II 2G Ex d IIC T3 Gb	HIE
	II 2D Ex tb IIIC T190°C Db	
RLF/400 HST	II 2G Ex d e IIC T3 Gb or II 2G Ex d IIC T3 Gb	HST
	II 2D Ex tb IIIC T190°C Db	
RLF 500 IQT	II 2G Ex d e IIC T3 Gb or II 2G Ex d IIC T3 Gb	IQT
	II 2D Ex tb IIIC T190°C Db	
RLF 300 IQL	II 2G Ex d e IIC T4 Gb or II 2G Ex d IIC T4 Gb	IQL
	II 2D Ex tb IIIC T130°C Db	
RLF 500 IQL	II 2G Ex d e IIC T3 Gb or II 2G Ex d IIC T3 Gb	
	II 2D Ex tb IIIC T190°C Db	
RLF/85 QL	II 2G Ex d e IIC T4 Gb	QL
	II 2D Ex tb IIIC T130°C Db	
RLF/165 QL	II 2G Ex d e IIC T4 Gb	
	II 2D Ex tb IIIC T130°C Db	

Type of sources:
HIT – metal halide tubular lamp, HST – high pressure sodium tubular lamp,
HME – high pressure mercury elliptical lamp, IQT – halogen tubular lamp,
IQL – halogen linear lamp, QL – induction lamp

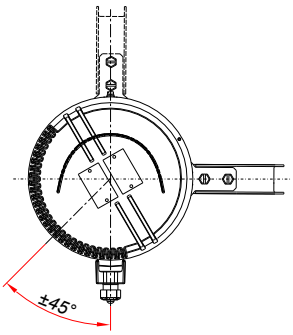
Table of reference sources:

Model code	Osram's type of sources				Philips type of sources			
	Type	Wattage	Lamp holder	Luminous flux	Type	Wattage	Lamp holder	Luminous flux
RLF/250 HIT	POWERSTAR HQI-T 250	250 W	E40	20 000 lm	MASTER HPI-T Plus 250W/645	250 W	E40	20 500 lm
	POWERBALL HCI-T 250	250 W	E40	26 000 lm				
	POWERBALL HCI-TT 250	250 W	E40	26 000 lm				
RLF/250 HST	VIALOX NAV-T 250 SUPER 4Y	250 W	E40	33 200 lm	SON-T Comfort 250W/621	250 W	E40	23 000 lm
	VIALOX NAV-T 250 4Y	250 W	E40	28 000 lm				
	VIALOX NAV-T 250	250 W	E40	28 000 lm				
RLF/250 HME	HQL (Standard) 250	250 W	E40	13 000 lm	HPL Comfort 250W/534	250 W	E40	14 200 lm
	HQL 250 DE LUXE	250 W	E40	14 000 lm				
RLF/400 HIT	POWERSTAR HQI-T 400/N	400 W	E40	42 000 lm	MASTER HPI-T Plus 400W/645	400 W	E40	35 000 lm
RLF/400 HST	VIALOX NAV-T 400 SUPER 4Y	400 W	E40	56 500 lm	SON-T Comfort 400W/621	400 W	E40	38 000 lm
	VIALOX NAV-T 400 4Y	400 W	E40	48 000 lm				
	VIALOX NAV-T 400	400 W	E40	48 000 lm				
RLF 500 IQT	-	-	-	-	HalogenA IDE	500 W	E40	10 250 lm
RLF 300 IQL	HALOLINE ECO 230	230 W	R7s	5 000 lm	Halogen Linear 117mm 2yr	300 W	R7s	5 600 lm
RLF 500 IQL	HALOLINE ECO 400	400 W	R7s	9 000 lm	Halogen Linear 117mm 2yr 500	500 W	R7s	9 900 lm
RLF/85 QL	-	-	-	-	MASTER QL 85W/830 (QL company)	85 W	QL	6 200 lm
RLF/165 QL	-	-	-	-	MASTER QL 165W/830 (QL company)	165 W	QL	12 000 lm

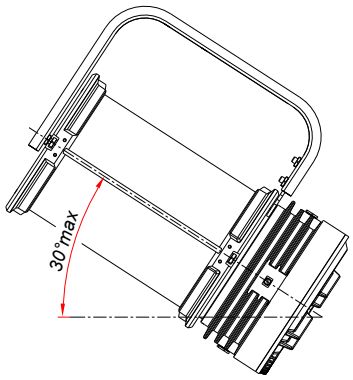
7. MOUNTING AND INSTALLATION

Limitation of mounting:

Floodlight RLF/... HIT, HST, HME, IQT, IQL



Picture 1.



Picture 2.

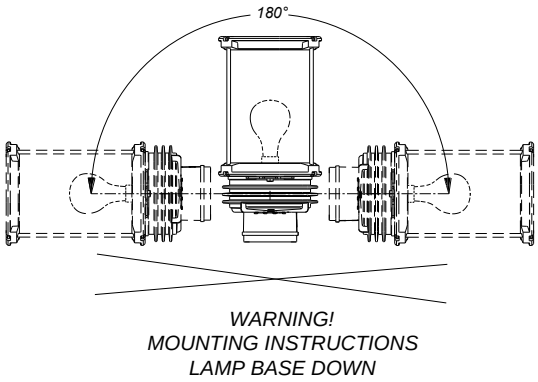
Picture 1. Allowed and possible rotation of the floodlight from the vertical to ± 45°

Picture 2. Allowed the rotation of the floodlight from horizontal to 30°

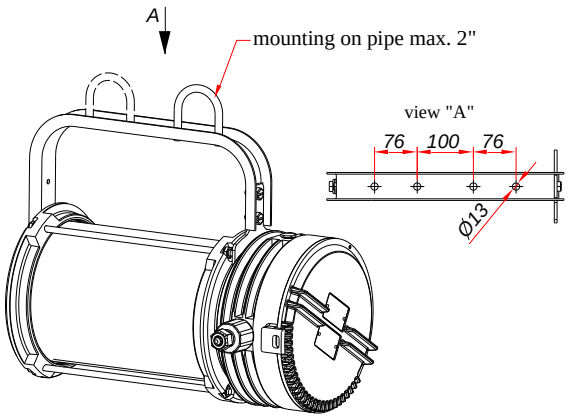
Floodlight RLF/... QL

There are no limits in the mounting to preserve the temperature class of the device.

To reach a maximum system lifetime it is recommended to install floodlight according to Picture 3, with base-down position of the QL lamp system. In outdoor luminaires, which may be used at temperatures below 0°C, the luminous flux can be to low. Therefore, it is recommended to position lamp base-up instead of base-down, or horizontal if possible, to reach a maximum luminous flux.



Picture 3.



Picture 4.

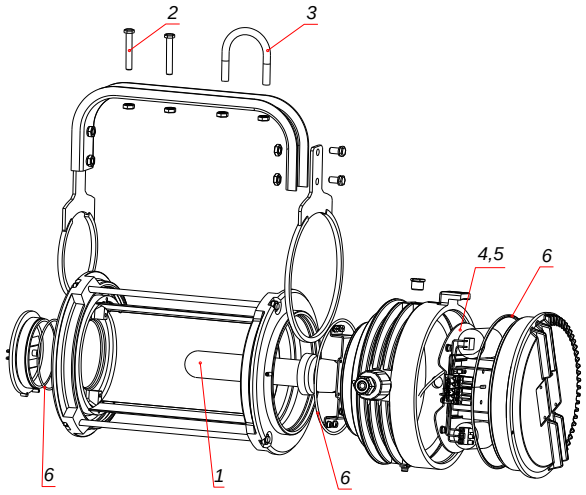
Wall or ceiling mounting is possible with RLF QL carrier and M12 screws. Also, it is possible to fixate luminaire to 2" pipe or other round surface with U-Bolts, like shown on Picture 4.

Installing floodlight RLF should be performed by trained and licensed persons in accordance with EN 60079-14: 2008, EN 1241-14: 2005 and the specific manufacturer's instructions.

8. SPARE PART AND ACCESSORIES

Accessories:

1. light source (according to table), Osram's or Philips
2. screws for mounting M12 x 40 ISO 4017 A4-80, set
3. Bolts in "U" shape M12 - A64/NW50 DIN 3570 A4, set

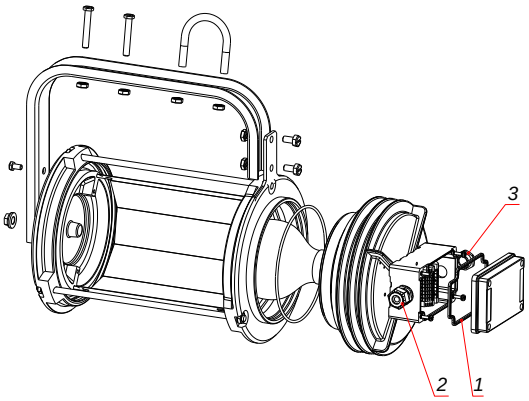


Floodlight type RLF/ ... HIT, HST, HME, IQT, IQL If it is not ordered differently, presume floodlight with RLF carrier, one Ex d e adapter ADP 23/1 and two Ex d plugs, without light source and mounting accessories.

Manufacturer will deliver spare parts and accessories on buyer request.

Spare parts:

4. set bed plate with ballast RLF/ ... HIT, HST
5. set bed plate with ballast RLF/ ... HME
6. baskets RLF/... HIT, HST, HME, QT, set
7. adapter Ex de, tip ADP 23/1
8. plug Ex d M20



Floodlight type RLF/... QL if is not ordered differently, presume floodlight with RLF QL carrier, one Ex e junction box MMK 13 with Ex e connecting terminals, Ex e M25 cable gland, Ex e M25 plug and Philips QL Induction Lighting System, without mounting accessories. Manufacturer will deliver spare part and accessories on buyer request.

Spare parts:

1. gasket of junction box Ex e type MMK 13
2. cable gland Ex e type SPU 25, M25 with gasket and nut
3. plug Ex e type SPC 25, M25 with gasket and nut

9. INSPECTION, MAINTENANCE, REPAIR AND OVERHAUL

Inspections are carried out in accordance with IEC 60079-17:2007 / C1: 2008, general and special conditions of manufacturer and users Regulations and includes supervision of parts on which the explosion protection depends, especially:

- that the housing, all part of housing, covers, housing adapter, junction box type of QL, protective glass and seal are without rupture and damage,
- that all the threads of the housing and covers in a compound and that mechanical blockage against self opening is done,
- that the Ex d cable glands and plugs are installed by the instructions of the manufacturer and that are fastened with nominal torque,
- that gasket of cable glands and housing of adapter are not damage and pressure screw are fastened with nominal torque.

All the repairs are performed by the manufacturer or the manufacturer's authorized personal and the original parts must be provided according to the product documentation, all in accordance with EN 60079-19:2011.
If repair or any other procedure are performed on the product by unauthorized person, all producer responsibility for the product and the warranty and the manufacturer's declaration of conformity becomes invalid.

10. RESPONSIBILITY AND AUTHORIZATION

This instruction is the basic information about the product. It is completed by the corresponding national laws and regulations.
Production, use, certification and supervision are determined at the national level:

a) Regulations concerning equipment and protective systems intended for use in potentially explosive atmospheres EU directive 94/9 EC (ATEX 95)
b) Regulations on minimum requirements for safety and health protection of workers and technical inspection of facilities, equipment, installations and equipment in hazardous areas EU directive 1999/92/EC (ATEX 137).

The responsible person shall ensure their implementation at the working facility.

11. STORAGE AND TRANSPORT

Transportation and warehousing of the lamps is only allowed in the original packaging, as outlined in a cardboard box.

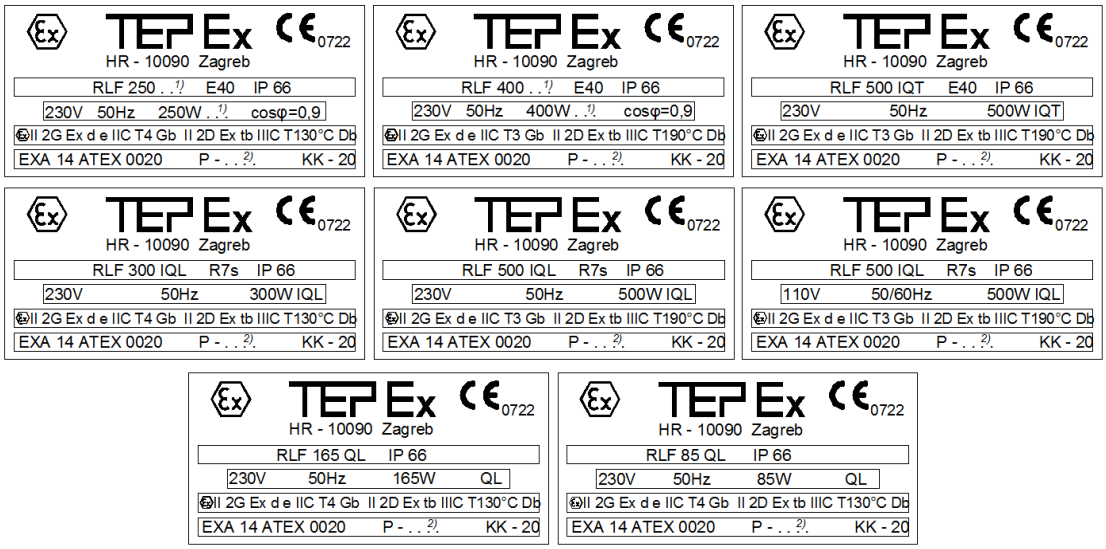
12. MANUFACTURER'S WARRANTY

The manufacturer provides a warranty on the product for a period of one year under the provisions of this user manual and the law on obligations. This statement has the force of Warranty sheet.

13. MARKING

a) Explosion proof floodlight, type RLF/... HIT, HST, HME, IQT, IQL with mounting Ex d e adapter and type RLF/ … QL with mounting junction box are labeled with:

- marking plates on bigger cover RLF or part of housing RLF 2 QL and marking label inside floodlight enclosure:

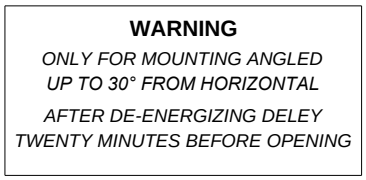

TEP Ex CE 0722
HR - 10090 Zagreb
RLF 250 . .1) E40 IP 66
230V 50Hz 250W . .1) cosφ=0,9
II 2G Ex d e IIC T4 Gb II 2D Ex tb IIIC T130°C Db
EXA 14 ATEX 0020 P - . . 2). KK - 20
TEP Ex CE 0722
HR - 10090 Zagreb
RLF 400 . .1) E40 IP 66
230V 50Hz 400W . .1) cosφ=0,9
II 2G Ex d e IIC T3 Gb II 2D Ex tb IIIC T190°C Db
EXA 14 ATEX 0020 P - . . 2). KK - 20
TEP Ex CE 0722
HR - 10090 Zagreb
RLF 500 IQT E40 IP 66
230V 50Hz 500W IQT
II 2G Ex d e IIC T3 Gb II 2D Ex tb IIIC T190°C Db
EXA 14 ATEX 0020 P - . . 2). KK - 20
TEP Ex CE 0722
HR - 10090 Zagreb
RLF 300 IQL R7s IP 66
230V 50Hz 300W IQL
II 2G Ex d e IIC T4 Gb II 2D Ex tb IIIC T130°C Db
EXA 14 ATEX 0020 P - . . 2). KK - 20
TEP Ex CE 0722
HR - 10090 Zagreb
RLF 500 IQL R7s IP 66
230V 50Hz 500W IQL
II 2G Ex d e IIC T3 Gb II 2D Ex tb IIIC T190°C Db
EXA 14 ATEX 0020 P - . . 2). KK - 20
TEP Ex CE 0722
HR - 10090 Zagreb
RLF 500 IQL R7s IP 66
110V 50/60Hz 500W IQL
II 2G Ex d e IIC T3 Gb II 2D Ex tb IIIC T190°C Db
EXA 14 ATEX 0020 P - . . 2). KK - 20
TEP Ex CE 0722
HR - 10090 Zagreb
RLF 165 QL IP 66
230V 50Hz 165W QL
II 2G Ex d e IIC T4 Gb II 2D Ex tb IIIC T130°C Db
EXA 14 ATEX 0020 P - . . 2). KK - 20
TEP Ex CE 0722
HR - 10090 Zagreb
RLF 85 QL IP 66
230V 50Hz 85W QL
II 2G Ex d e IIC T4 Gb II 2D Ex tb IIIC T130°C Db
EXA 14 ATEX 0020 P - . . 2). KK - 20

1) entered type of sources
2) entered the serial No.

- warning plates on both covers RLF for types RLF/... HIT, HST, HME, IQT, IQL:

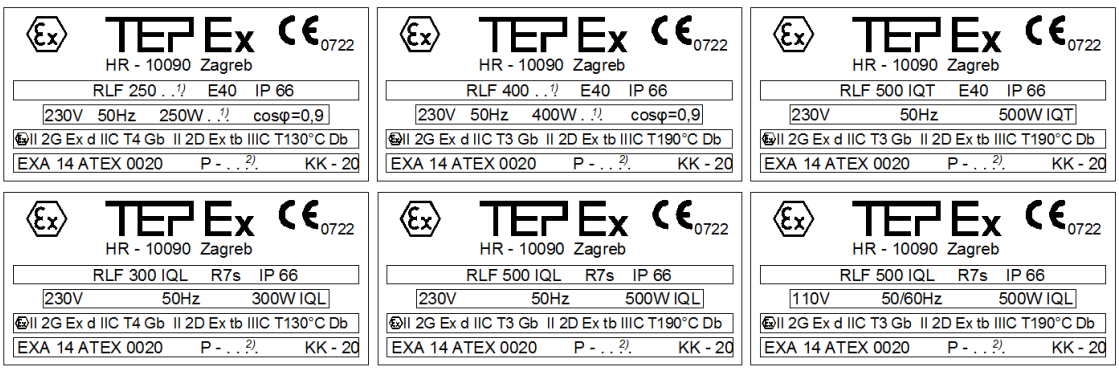
- warning plates on cover of junction box for type RLF/... QL:

- Warning plates on smaller cover RLF for types RLF/... HIT,HST,HME,IQT, IQL:



b) Explosion proof floodlight type RLF/... HIT, HST, HME, IQT, IQL with mounting Ex d cable gland are labeled with:

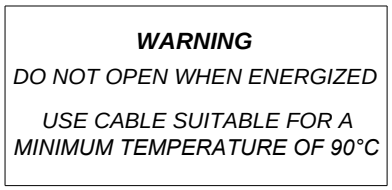
- marking plates on bigger cover RLF and marking label inside floodlight enclosure:


TEP Ex CE 0722
HR - 10090 Zagreb
RLF 250 . .1) E40 IP 66
230V 50Hz 250W . .1) cosφ=0,9
II 2G Ex d IIC T4 Gb II 2D Ex tb IIIC T130°C Db
EXA 14 ATEX 0020 P - . . 2). KK - 20
TEP Ex CE 0722
HR - 10090 Zagreb
RLF 400 . .1) E40 IP 66
230V 50Hz 400W . .1) cosφ=0,9
II 2G Ex d IIC T3 Gb II 2D Ex tb IIIC T190°C Db
EXA 14 ATEX 0020 P - . . 2). KK - 20
TEP Ex CE 0722
HR - 10090 Zagreb
RLF 500 IQT E40 IP 66
230V 50Hz 500W IQT
II 2G Ex d IIC T3 Gb II 2D Ex tb IIIC T190°C Db
EXA 14 ATEX 0020 P - . . 2). KK - 20
TEP Ex CE 0722
HR - 10090 Zagreb
RLF 300 IQL R7s IP 66
230V 50Hz 300W IQL
II 2G Ex d IIC T4 Gb II 2D Ex tb IIIC T130°C Db
EXA 14 ATEX 0020 P - . . 2). KK - 20
TEP Ex CE 0722
HR - 10090 Zagreb
RLF 500 IQL R7s IP 66
230V 50Hz 500W IQL
II 2G Ex d IIC T3 Gb II 2D Ex tb IIIC T190°C Db
EXA 14 ATEX 0020 P - . . 2). KK - 20
TEP Ex CE 0722
HR - 10090 Zagreb
RLF 500 IQL R7s IP 66
110V 50/60Hz 500W IQL
II 2G Ex d IIC T3 Gb II 2D Ex tb IIIC T190°C Db
EXA 14 ATEX 0020 P - . . 2). KK - 20

1) entered type of sources
2) entered the number of individual tests

- warning plates on bigger cover RLF for types RLF/... HIT,HST,HME,IQT,IQL:

- warning plates on small cover RLF for types RLF/... HIT,HST,HME,IQT,IQL:



- warning plates on small cover RLF of floodlight enclosure RLF/... HIT,HST,HME,IQT,IQL: